Patient Condition Occurrence Frequency (CPCOF)

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PATIENT CONDITION OCCURRENCE FREQUENCY (PCOF) TOOL VERSION 1.0.0.0 USER GUIDE

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REVISIONS

Date	Revision Description
10 Oct 2012	First draft
09 Nov 2012	Revisions and edits
06 Dec 2012	Extensive revisions including graphics updated to v.0.7
15 Feb 2013	Revisions to update to v.1.0.0.0 (new graphics and text updates)

Contents

Introduction

The Patient Condition Occurrence Frequency (PCOF) tool has been accredited for use by Department of Defense (DoD) medical planners, materiel developers, clinicians, and logisticians to manage (i.e., import, archive, share, adjust, and export) combat, humanitarian assistance (HA, which may include defense support of civil authorities [DSCA] or humanitarian and civic assistance [HCA] mission types), and disaster relief (DR) PCOF distribution tables necessary to develop clinically-based planning estimates across the range of military operations (ROMO).

A PCOF table is a listing of *International Classification of Diseases*, *9th Revision* (ICD-9) codes and their associated probability distribution for each patient type (e.g., wounded in action, disease, and nonbattle injury). The PCOF tool contains 404 ICD-9 codes: 336 ICD-9 codes selected by the Defense Medical Materiel Program Office (DMMPO) and 68 ICD-9 codes which occur in HA and DR data sets. The baseline PCOFs contained in the tool were developed by Naval Health Research Center (NHRC) and are based on empirical data.

Install the PCOF Tool (Windows Version 1.0.0.0) and Launch the Application

The PCOF tool provides analysts with a quick, accurate, and reliable means to estimate the probability distribution for illnesses and injuries that may occur across the ROMO. Mission settings may be HA (including DSCA or HCA), DR, combat, or deployed warfighter outpatient visits. The PCOF tool provides baseline estimates for a ROMO but can also estimate future PCOFs based on user-specified adjustment to various parameters. The product of the PCOF tool is a list of ICD-9 codes and probability distributions that are used in modeling and simulation studies that support determinations of configuration, manpower, equipment, and supply needs for such military operations. NHRC, Department 161—with contracted assistance from Teledyne Brown Engineering, Inc. and Science Applications International Corporation, developed this user guide to help you begin using the PCOF tool. You will be introduced to basic navigation in this training document, which is intended for internal use only. The document consists of screen captures, of the various graphic user interfaces you will encounter when using the program, and explanatory text.
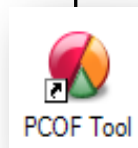
Installing the application on your desktop computer is easy. Once you have been given access to the *PCOFToolSetup(1.0.0).msi* file, simply double click the file and follow the Microsoft Windows instructions for installation. The program will be installed on your machine automatically and a shortcut icon will appear on your desktop (while another shortcut will also install to your **Start Menu**, an alternate icon that, when clicked, will also open the program).

Click the **PCOF tool** icon to launch the program.

Step 1. Click the .msi file to install the application.

Step 2. Click the desktop icon to launch the application.

The Home Tab View or Start Screen

When the program is first opened, the **Home** screen displays the list of baseline PCOFs contained within the tool. These PCOFs were built and approved by NHRC. You may begin with a baseline PCOF, modify it, and save the modified version to the tool as a new PCOF. The next time you open the tool your modified PCOF will be displayed along with the baseline PCOFs. Note that baseline PCOFs cannot be modified by the user.
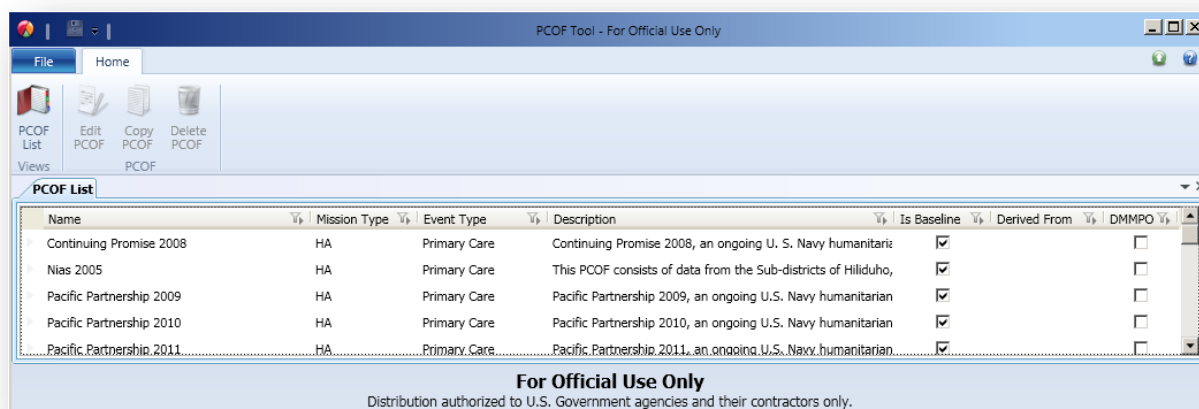
The following labels are displayed for each PCOF in the list:

- **Name** (i.e., the title of the PCOF),
- **Mission Type** (e.g., HA, DR, combat, or garrison),
- **Event Type** (e.g., primary care, earthquake, flood, hurricane, tsunami, theatre, outpatient),
- **Description** (e.g., environment, circumstance, or event from which the data originated),
- **Derive From** (currently blank), and
- **DMMPO** (if checked, include only DMMPO-listed ICD-9 codes).

The **Description** identifies the data basis of the baseline PCOF. All baseline PCOFs were developed using empirical data.

The **Derived From** column is only populated for user modified and saved PCOFs. This field documents which baseline PCOF the new user modified PCOF used as a starting point.

The **DMMPO** checkbox cannot be checked in this view. When checked, this checkbox indicates whether DMMPO-listed ICD-9 codes were used exclusively in the last-saved PCOF calculation. Note that baseline PCOFs use all 404 ICD-9 codes by default. A derived PCOF is the only PCOF that would ever have this checkbox marked.

View a Baseline PCOF

Select a baseline PCOF. For any PCOF, the initial view will show the distribution of major categories and associated percentages for each patient type and the adjustment factor options. To view the results (the list of ICD-9 codes and their distribution), select the **PCOF Results** button from the Ribbon.

Baseline PCOF Descriptions

Continuing Promise 2008	Continuing Promise (CP) 2008, part of an ongoing U. S. Navy HA mission, was performed by USS *Boxer* (LHD 4) and USS *Kearsarge* (LHD 3). *Boxer* made stops in Peru, El Salvador, and Guatemala and *Kearsarge* made stops in Columbia, Dominican Republic, Guyana, Haiti, Nicaragua, and Trinidad and Tobago. The Pacific phase was completed by *Boxer* between April and June 2008 and medical providers treated over 20,000 patients, while *Kearsarge* deployed between August and November 2008 for the Atlantic phase and treated over 40,000 patients.
Nais 2005	This PCOF consists of data from the sub-districts of Hiliduho, Lotu, Namohalu, Tuhumberua, and Afulu on the island of Nias, Indonesia from March 28–April 1, 2005. The available data comes approximately 9 weeks after the event. There were a total of 2,797 disease records and 23 trauma records. The top three disease conditions were respiratory disorders, musculoskeletal disorders and gastrointestinal disorders.
Pacific Partnership 2009	Pacific Partnership (PP) 2009, part of an ongoing U.S. Navy HA mission, took place between July and September 2009 with USNS *Richard E Byrd* (T-AKE 4) visiting Tonga, Samoa, the Solomon Islands, Kiribati, and the Marshall Islands.
Pacific Partnership 2010	PP 2010, part of an ongoing U.S. Navy HA mission, took place between June and September 2010 with the USNS Mercy (T-AH 19) visiting Vietnam, Cambodia, Indonesia, and Timor-Leste (or East Timor).
Pacific Partnership 2011	PP 2011, part of an ongoing U.S. Navy HA mission, took place between March and July 2011 with USS *Cleveland* (LPD 7) visiting Tonga, Vanuatu, Papua New Guinea, Timor-Leste (or East Timor), and Micronesia.
Haiti Earthquake 2010	This PCOF consists of data that describe the experience of the first field hospital established after the earthquake by the University of Miami Global Institute/Project Medishare (UMGI/PM). UMGI/PM conducted a retrospective medical record review of all available inpatient records for the period between January 13 and May 28, 2010.

SME-Enhanced Haiti Earthquake
Subject matter expert (SME)-enhanced Haiti Earthquake PCOF is based on the data set listed above. Some adjustments were made to fill in where the raw data may have had zeros.

Pakistan Flood 2010
This PCOF consists of data collected by a Disease Early Warning System in the Pakistani provinces of Khyber Pakhtunkhwa, Sindh, Punjab, Baluchistan, and the Indus River basin and its tributaries. The impacted area exceeded 300,000 square miles with 378,566 encounters collected between July and early September 2010.

SME-Enhanced Pakistan Flood
SME-enhanced Pakistan Flood PCOF is based on the data set listed above. Some adjustments were made to fill in where the raw data may have had zeros.

Katrina Hurricane 2005
This PCOF consists of data that describes the encounters at evacuation centers and health care facilities between September 8 and September 25, 2005. There were 7,508 events recorded, of which 4,169 were illnesses, and 2,018 were injuries.

SME-Enhanced Katrina Hurricane
SME enhanced Katrina Hurricane PCOF is based on the data set listed above. Some adjustments were made to fill in where the raw data may have had zeros.

Sri Lanka Tsunami 2004
This PCOF consists of data collected by a Korean Disaster Medical Assistance Team. The team staffed a field clinic between January 2 and January 8, 2005.

SME-Enhanced Sri Lanka Tsunami
SME-enhanced Sri Lanka Tsunami PCOF is based on the data set listed above. Some adjustments were made to fill in where the raw data may have had zeros.

Desert 2004–2009
Military combat operations executed in a desert environment. Operation Iraqi Freedom (OIF), between 2004 and 2009.

Jungle 1965–1971
Military combat operations executed in a jungle environment. Vietnam War data for hospitalizations 1965–1971 derived from, "Medical Resource Allocation: Injury and Disease Incidence Among Marines in Vietnam (NHRC TR No. 89-36)."

Mountainous 2010
Military combat operations executed in a mountainous environment. Operation Enduring Freedom (OEF) 2010, Afghanistan.

Peace Enforcement Sep
Peace enforcement (a.k.a., peace operations) is a broad term that

2010–Dec 2011	encompasses multiagency and multinational crisis response and limited contingency operations. Peace enforcement involves all instruments of national power with military missions to contain conflict, redress the peace, and shape the environment to support reconciliation and rebuilding and facilitate the transition to legitimate governance. Peace operations include peacekeeping, peace enforcement, peacemaking, peace building, and conflict prevention efforts. (Source: JP 3-0) Operation New Dawn, Sep 2010–Dec 2011.
Raid Oct 3–4 1993, May 12–15 1975	A raid is an operation to temporarily seize an area in order to secure information, confuse an adversary, capture personnel or equipment, or to destroy a capability culminating with a planned withdrawal. (Source: JP 3-0) Data for the development of raid PCOFs were composite of Operation Gothic Serpent from the first Battle of Mogadishu (October 3–4, 1993) and the Mayaguez Incident at the end of the Vietnam War, which was a raid on the Cambodian island of Koh Tang following the seizure of an American container ship (May 12–15, 1975).
Stability 2008–2009	Stability Operations is an overarching term encompassing various military missions, tasks, and activities conducted outside the United States, in coordination with other instruments of national power, to maintain or reestablish a safe and secure environment, provide essential governmental services, emergency infrastructure reconstruction, and humanitarian relief. (Source: JP 3-0) OIF 2008–2009.
Urban 2004	Urban operations are conducted in large, densely populated areas with problems unique to clearing enemy forces while possibly restoring services and managing major concentrations of people. During urban operations, joint forces may not focus only on destruction of enemy forces but also may be required to take steps necessary to protect and support noncombatants and their infrastructure from which they receive services necessary for survival. (Source: JP 3-0) First Battle of Fallujah Nov 2004.
Desert OPV 2004–2009	Military combat operations executed in a desert environment.
Jungle OPV 1965–1971	Military combat operations executed in a jungle environment.
Mountainous OPV 2010	Military combat operations executed in a mountainous environment.
Peace Enforcement OPV Sep	Peace Enforcement (or Peace Operations) is a broad term that

2010–Dec 2011	encompasses multiagency and multinational crisis response and limited contingency operations involving all instruments of national power with military missions to contain conflict, redress the peace, and shape the environment to support reconciliation and rebuilding and facilitate the transition to legitimate governance. Peace operations include peacekeeping, peace enforcement, peacemaking, peace building, and conflict prevention efforts. (Source: JP 3-0) Operation New Dawn Sep 2010–Dec 2011.
Raid OPV Oct 3–4 1993, May 12–15 1975	A raid is an operation to temporarily seize an area to secure information, confuse an adversary, capture personnel or equipment, or destroy a capability culminating with a planned withdrawal. (Source: JP 3-0)
Stability OPV 2008–2009	An overarching term encompassing various military missions, tasks, and activities conducted outside the United States in coordination with other instruments of national power to maintain or reestablish a safe and secure environment, provide essential governmental services, emergency infrastructure reconstruction, and humanitarian relief. (JP 1-02. SOURCE: JP 3-0) OIF 2008–2009.
Urban OPV 2004	Urban operations are conducted in large, densely-populated areas with problems unique to clearing enemy forces while possibly restoring services and managing major concentrations of people. During urban operations, joint forces may not focus only on destruction of enemy forces but also may be required to take steps necessary to protect and support noncombatants and their infrastructure from which they receive services necessary for survival. (Source: JP 3-0)

The SME-enhanced DR PCOFs are based on the data sets listed above. Some adjustments were made to fill in where the raw data may have had zeros. This was done to account for underlying diseases and conditions that may be present but did not appear in reported data. The following four pages show the major category percentages in the DR baseline PCOF and the changes made in the SME-enhanced DR PCOFs with a short justification. In some cases, researchers could not find detailed data so the major category was given a value of 0.5% so the category would not equal 0%.

1.   Floods Subject Matter Expert (SME) Adjusted

Category	Change justification	Current PCOF tables	SME adjusted
Disease			
Nervous system disorders	Non-zero	0.0%	0.5%
Eye disorders	Bangladesh and Malaysia were in the 2–3% range.	0.2%	2.0%
Ear disorders	Pakistan and Bangladesh were in the 1–2% range	0.8%	1.0%
Dental and oral disorders	Non-zero	0.0%	0.5%
Respiratory disorders	Missouri had 10%, all others were at least 17%. Acute respiratory failure is typical.	24.5%	19.0%
Gastrointestinal disorder	Figures ranged from 10% to 45%; this is close to the median value. Diarrhea is common.	29.5%	26.0%
Genitourinary disorders	Low incidence when reported.	0.0%	1.5%
Cardiovascular disorders	Non-zero	0.0%	0.5%
Musculoskeletal disorders	Outside of floods usually a small percent	0.0%	1.0%
Skin disorders	Main cause is contact with floodwaters. Bangladesh, Mozambique, Missouri, and Malaysia are in the 6% to 26% range.	31.5%	13.0%
Infectious diseases	Most of the estimate is for tropical infections, so the percent should be reduced in temperate climates. Typical cases would be malaria, dengue, and leptospirosis. Doesn't factor in cholera, which could claim a large percent if it occurs. Percentages from Mozambique, Sudan, and some provinces in Pakistan were in the twenties. (Viral infections estimated around 1%.)	3.5%	16.0%
General symptoms	Conservative estimate in line with the majority of data, although one province in Pakistan was at 26%.	10.1%	9.5%
Metabolism disorders	Non-zero	0.0%	0.5%
Nutritional disorders	Beyond dehydration, much of this will be based on malnourishment, especially in children. Figure could definitely go higher in catastrophic floods in poorer regions.	0.0%	4.5%
OB/Gyn disorders	Figure may go higher in later stages.	0.0%	1.5%
Mental disorder	Figure of 2% in Bangladesh. Rates were estimated at 2 to 3 times above normal in European floods.	0.0%	2.5%
Neoplasm	Non-zero	0.0%	0.5%
Trauma			
Fractures	Could be higher in flash flooding	0.0%	3.0%
Open wounds	Could be higher in flash flooding	0.0%	4.0%
Amputations	Non-zero	0.0%	0.5%
Intracranial injuries	Non-zero	0.0%	1.0%
Crush injuries	Non-zero	0.0%	0.5%
Burns		2.8%	2.5%
Internal injuries	Non-zero	0.0%	1.5%
Superficial/contusions	Based largely on Missouri figures	35.4%	30.0%
Dislocations	Non-zero	0.0%	4.5%
Sprains/strains	Based largely on Missouri figures	35.0%	33.0%
Insect bites	Lower in temperate climates.	2.4%	2.0%

1. Tsunami SME Adjusted

ICD-9 categories	Change justification	Current PCOF tables	SME adjusted
Disease			
Nervous system disorders	Most data has it around 3–3.5%, but the Nias, Indonesia dataset has as high as 10.7%	3.2%	4.0%
Eye disorders	Mostly around 0%, Sri Lanka data has it at 2.5%	2.5%	1.5%
Ear disorders	Mostly around 0%, Sri Lanka data has it at 2.5%	2.5%	1.5%
Dental and oral disorders	Non-zero	0.0%	0.5%
Respiratory disorders	Data has a wide range from 13–42%, respiratory disorders decrease with time	38.8%	36.0%
Gastrointestinal disorder	Sri Lanka data only at 6.3%, higher in other data ranging from 10–17%	6.3%	12.0%
Genitourinary disorders	Between 0–2%, there is outlier data at 20.9% from Banda Aceh weeks after tsunami	1.4%	1.5%
Cardiovascular disorders	At 5% in Sri Lanka data, lower in other data sets	5.0%	3.0%
Musculoskeletal disorders	Most data around 13–14%, musculoskeletal disorder decrease with time	14.0%	13.5%
Skin disorders	Mostly between 12–14%, seems to decrease slightly with time	13.5%	12.5%
Infectious diseases	Between 0–2.3%, Banda Aceh dataset from 3 weeks out has it at 9.3%	2.1%	2.5%
General symptoms	Data ranges from 0.6–13.8%, picked a middle value	5.8%	6.0%
Metabolism disorders	Typically low, between 0–3%	2.5%	1.5%
Nutritional disorders	Non-zero	0.0%	0.5%
OB/GYN disorders	Typically low, Banda Aceh data is an outlier with it at 8.7%	0.6%	1.0%
Mental disorder	Typically low, Banda Aceh data from 3 weeks out has it at 10.7%	1.2%	2.0%
Neoplasm	Non-zero	0.5%	0.5%
Trauma			
Fractures	Not much data but fractures appear to be about half of open wounds	7.9%	25.0%
Open wounds	This is typically the highest occurring category	6.6%	50.0%
Amputations	Non-zero	0.0%	0.5%
Intracranial injuries	Typically low	0.0%	1.0%
Crush injuries	Low, but debris can cause crushing injuries	0.0%	2.0%
Burns	Typically low	2.8%	1.0%
Internal injuries	Typically low	15.4%	1.5%
Superficial/contusions	Typically the 3rd highest occurring category, some articles have the percentage higher	43.4%	10.0%
Dislocations	Low, but data for dislocation occasionally shows up in articles	0.3%	3.0%
Sprains/strains	Low, but data for sprains/strains occasionally shows up in articles	4.7%	3.0%
Insect bites	Non-zero	0.0%	0.5%
Heat and cold	Non-zero	0.0%	0.5%
Other trauma and injury	Typically low, unsure if data listed as other matches what we list as other	18.9%	2.0%

1.   Earthquake SME Adjusted

ICD-9 categories	Change justification	Current PCOF tables	SME adjusted
Disease			
Nervous system disorders	Non-zero	0.0%	0.5%
Eye disorders	Non-zero	0.0%	0.5%
Ear disorders	Non-zero	0.0%	0.5%
Dental and oral disorders	Non-zero	0.0%	0.5%
Respiratory disorders	Range in Pakistan and Haiti goes from 24 to 30%	7.6%	25.0%
Gastrointestinal disorder	Range in Pakistan and Haiti goes from 16 to 26%	21.0%	16.0%
Genitourinary disorders	In Haiti tent cities 12%, in Pakistan 13.4%	0.0%	10.0%
Cardiovascular disorders	Data from Haiti tent cities	0.0%	6.0%
Musculoskeletal disorders	In Haiti tent cities 3.5% of muscle, joint, and bone pain	0.0%	3.0%
Skin disorders	Same as in Haiti surveillance data	11.2%	11.0%
Infectious diseases	Number of infectious disease may be high due to Location	32.6%	8.0%
General symptoms	Reduced from Haiti surveillance data	20.1%	11.0%
Metabolism disorders	Non-zero and greater than .5 because diabetes is common worldwide	0.0%	1.0%
Nutritional disorders	From Haiti surveillance data	3.9%	3.0%
OB/GYN disorders	From Haiti surveillance data	1.9%	2.0%
Mental disorder	From Haiti surveillance data	1.6%	2.0%
Neoplasm		0.00	
Traumas			
Fractures	Reduced from Haiti surveillance data	10.1%	50.0%
Open wounds	Reduced from Haiti surveillance data	66.5%	30.0%
Amputations	Slightly increased since surveillance data from basic clinics and amputations would be seen at higher levels of care	0.2%	0.5%
Intracranial injuries	Haiti surveillance data	0.4%	0.5%
Crush injuries	Haiti surveillance data	1.3%	2.0%
Burns	Slight decrease on Haiti surveillance data	2.3%	2.0%
Internal injuries	Data from Turkey, Pakistan, Iran, and Haiti range from 1–8% most between 1–5%	0.0%	3.0%
Superficial/contusions	Slightly increased Haiti data based on complications from earthquakes article, data from other incidents varies widely	1.7%	5.0%
Dislocations	Data from IDF Haiti	0.0%	2.0%
Sprains/strains	Data from IDF Haiti	0.0%	2.0%
Insect bites	Non-zero	0.0%	0.5%
Heat and cold	Non-zero	0.0%	0.5%
Other trauma and injury	Reduced, made percentage more in line with nerve, blood vessel and spinal injuries since they are in this category	17.5%	2.0%

- Νοτε: ΟΒ/ΓΨΝ = οβστετριχ/γψνεχολογιχαλ.

1.   Hurricane PCOF Table Change Rationale

Disease	Change rationale	Discharge summary	Current PCOF table	SME derived raw %	SME adjusted (normalized)
Disease					
* Nervous system disorders	Level 3 Data	794	0.0%	1.3%	1.2%
* Eye disorders	subset nervous sys dis	–	0.0%	1.3%	1.2%
* Ear disorders	subset nervous sys dis	–	0.0%	1.3%	1.2%
Dental and oral disorders	Non-zero	–	0.0%	5.0%	4.5%
* Respiratory disorders	Level 3 Data	3,300	46.0%	16.4%	14.9%
*Gastrointestinal disorder	Level 3 Data	3,290	19.7%	16.3%	14.8%
* Genitourinary disorders	Level 3 Data	2,092	0.0%	10.4%	9.4%
*Cardiovascular disorders	Level 3 Data	349	0.8%	1.7%	1.6%
* Musculoskeletal disorders	Level 3 Data	1,881	0.0%	9.3%	8.5%
* Skin disorders	Level 3 Data	752	1.5%	3.7%	3.4%
* Infectious diseases	Level 3 Data	1,215	13.3%	6.0%	5.5%
General symptoms	Level 3 Data	188	0.0%	0.9%	0.8%
Metabolism disorders	Level 3 Data	1,816	8.9%	9.0%	8.2%
Nutritional disorders	Non-zero	–	0.0%	5.0%	4.5%
* OB/GYN disorders	Level 3 Data	498	0.0%	2.5%	2.2%
Mental disorder	Level 3 Data	2,386	9.9%	11.8%	10.8%
* Neoplasm	Level 3 Data	1,598	0.0%	7.9%	7.2%
Trauma/injury					
Fractures		–	9.9%	9.9%	8.8%
Open wounds		–	52.1%	52.1%	46.5%
** Amputations	Non-zero	–	0.0%	7.0%	6.2%
** Intracranial injuries	Non-zero	–	0.0%	1.5%	1.3%
Crush injuries		–	4.2%	4.2%	3.8%
Burns		–	2.8%	2.8%	2.5%
** Internal injuries		–	0.0%	3.2%	2.9%
Superficial/contusions		–	13.0%	13.0%	11.6%
Dislocations		–	2.0%	2.0%	1.8%
Sprains/strains		–	8.8%	8.8%	7.8%
Insect bites		–	6.8%	6.8%	6.1%
Heat and cold	Non-zero	–	0.0%	0.5%	0.4%
Other trauma and injury		–	0.3%	0.3%	0.2%

* National Hospital Discharge Survey: 2007 Summary. Margaret Jean Hall, Ph.D.; Carol J. DeFrances, Ph.D.; Sonja N. Williams, M.P.H.; Aleksandr Golosinskiy, M.S.; and Alexander Schwartzman, Division of Health Care Statistics

** Analysis of Medical Needs During Disasters Caused by Tropical Cyclones: Anticipated Injury Patterns. Eric, K. Journal of Tropical Medicine and Hygiene 1993, 96, 370–376

Note: OB/GYN = obstetric/gynecological.

Modify a Baseline PCOF

Baseline PCOFs can be modified in three ways. The user may:

1. include only DMMPO ICD-9 codes in the results by checking the **Use Only DMMPO ICD9s** check box (1);
2. vary the **Country** and **Season** adjustment factors (2–3); and
3. manually enter revisions to **Age Adjustment**, **Gender Adjustment**, and the distributions of the ICD-9 major categories and subcategories within each patient type (4).

When the PCOF is restricted to DMMPO ICD-9 codes, non-DMMPO ICD-9 codes are set to zero and then the sub-category and categories are renormalized. Table 1 shows the adjustment factors associated with each PCOF type and which patient type is effected by varying the factors.

Table 1

Adjustment Factors Associated With Each PCOF

Adjustment Factor	HA ICD-9 category effected	DR ICD-9 category effected	Combat ICD-9 category effected
Age	Disease, trauma	Disease, trauma	n/a
Gender	Disease, trauma	Disease, trauma	Disease, NBI, WIA
Time phase	n/a	Disease, trauma	n/a
Climate	Disease (i)	Disease (i)	Disease
Economics	Disease (i)	Disease (i)	n/a
Season	Disease	Disease	Disease
Country specific	Disease	Disease	n/a
Operations	n/a	n/a	WIA
Environment (terrain)	n/a	n/a	WIA
Geographic region	n/a	n/a	Disease

Note: (i) = indirect effect.

Combat PCOFs have WIA, NBI, and disease as patient types. HA and DR PCOF patient types are disease and trauma. Manually adjusting the major category or sub-category distribution values changes the value for that category and the other category values are renormalized so that the sum of the major category or sub-category values equals 100.

To make a user revision, click within the desired cell in the **User Revision** column. The cell will highlight for edit. Type your adjusted value and hit enter or click out of the cell. The value is entered and the table is updated to reflect the change.

The user revision cells will turn red if the sum is greater than 100%. If you mouse over the error, you will see the message, "The sum of the user values must be ≤100%." Correct this error by adjusting the occurrence probability distribution to equal 100%.

Custom, non-compliant PCOFs are not associated with adjustment factors.

1. The overall percentage of disease injuries can be revised here. An adjustment to this value will initiate appropriate adjustment throughout the PCOF table. It is the same within Trauma, WIA, and NBI tables.

2. The overall occurrence percentage of, for example, eye disorders, may be made at this level. Simply click on the cell, type a revised figure, and then hit ENTER. Again, the change you make will initiate an appropriate adjustment throughout the entire PCOF.

3. The **Sum** shows the total of all Disease.

4. Expand the eye disorders line item to drill down to a more detailed breakdown of this injury type. Click the plus sign at the far left end of the row to reveal sub-rows (as shown on the next page).

① Select the Eye Disorders row. With your pointer, click the plus sign to expand the row and reveal the sub-rows (labeled SubCategories).

② There are five sub-rows under Eye Disorders. The sub-rows can be expanded an additional level by clicking the plus sign on a particular row.

③ Note that the occurrence percentages within these sub-rows can be adjusted in the same way the parent rows can be adjusted.

① Expand the "Other eye disorders" sub-row to reveal the ICD-9 code level of detail.

② All ICD-9 codes under the selected sub-row are shown with the code number, description, and probability distribution.
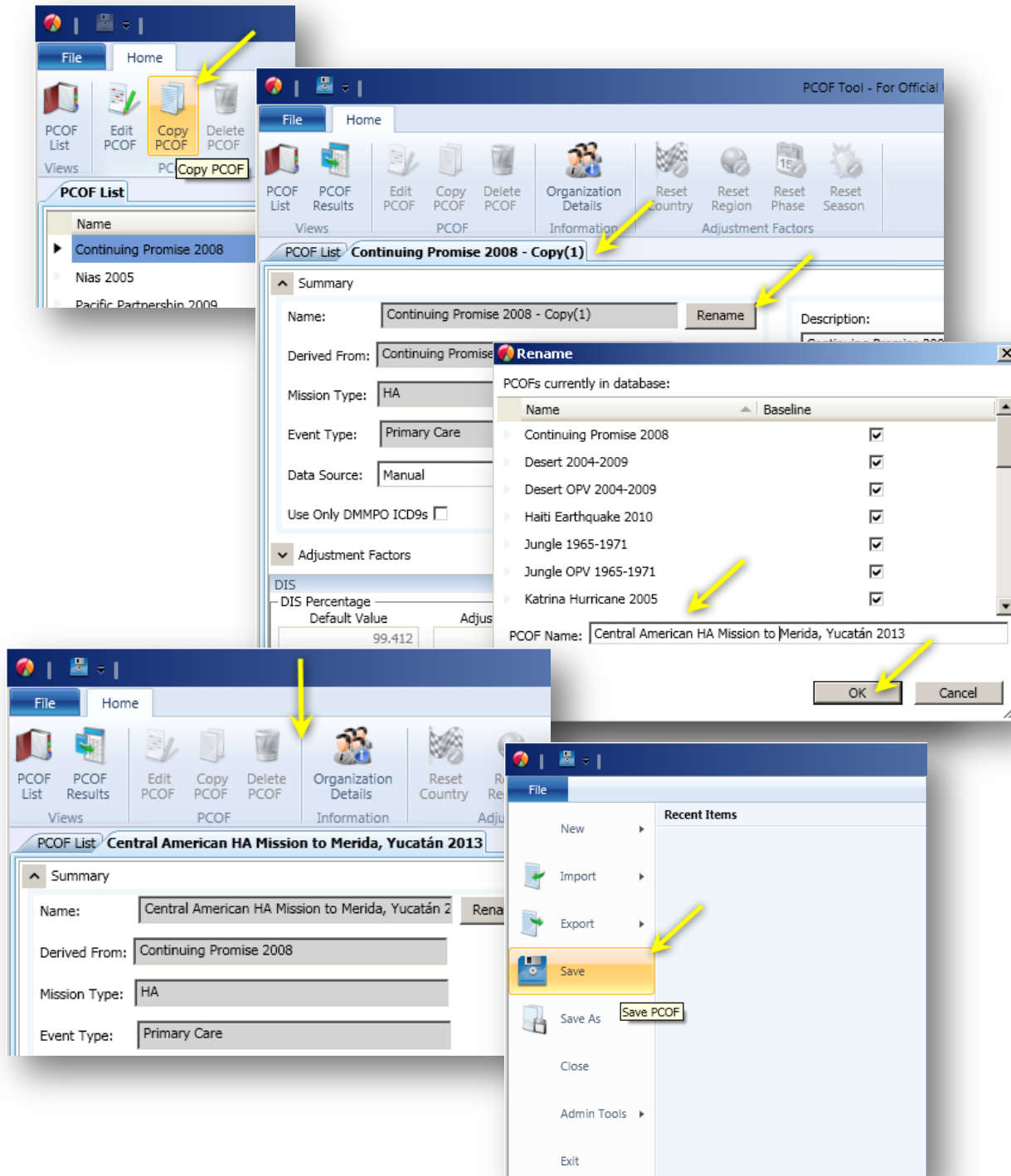
Save a Modified PCOF

To save a modified PCOF, select **Save** from the file menu and rename the PCOF. (The modified PCOF cannot have the same name as a baseline PCOF.)
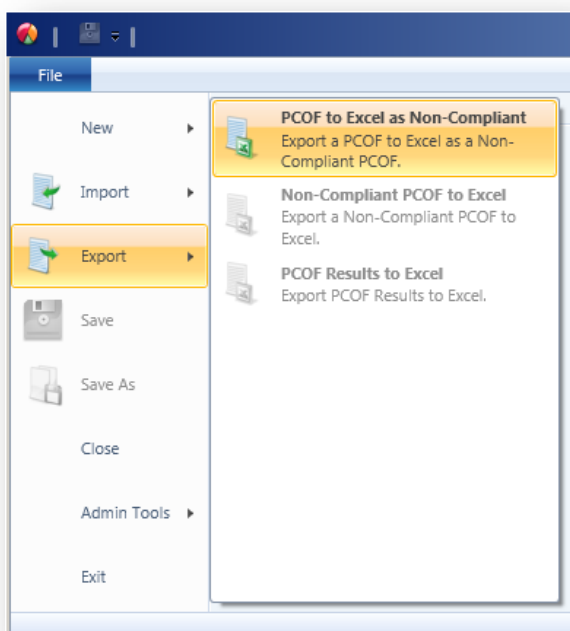
Copy a PCOF

To copy a PCOF, highlight the desired PCOF in the PCOF list and select **Copy PCOF**. A copy of the PCOF is opened. The baseline contents are preserved as-is, allowing you to derive multiple PCOFs from the same baseline PCOF. Save the copied PCOF by first renaming it (select the **Rename** button). A new window appears allowing you to rename the copy (type into the **PCOF Name** field, and then select the **Save** button). The PCOF tab will update with the new name. Finally, save the new copy (navigate to the **File** tab and select **Save**).
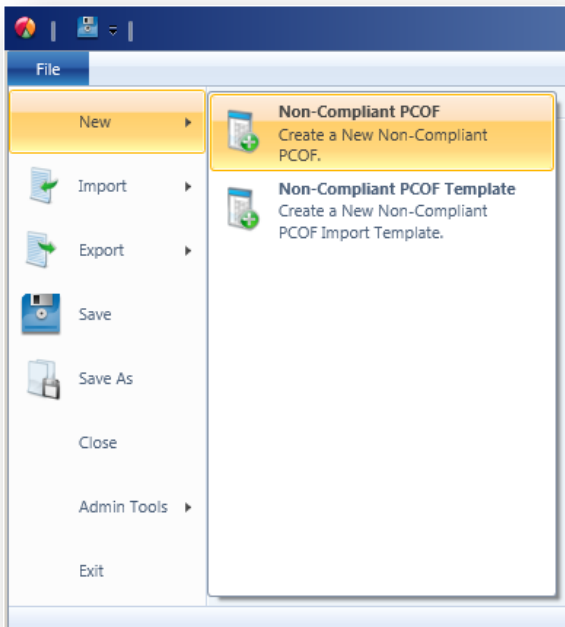
Export Results

To export results from any PCOF, first open the desired PCOF and select **PCOF Results**. Then choose **Export Results** from the file menu. The results displayed are rounded, and when summed within a patient type, equal 100, with a tolerance of .001.

Create a New Custom Non-compliant PCOF

To create a new PCOF, select **New** and then **Custom Non-compliant PCOF** from the file menu. A dialog box appears where you can name the PCOF, supply a description of the PCOF, and associate a mission type and an event type as you create the new PCOF. Once the dialog box is completed and you click **Create**, the new PCOF is opened and ready to be populated. All ICD-9 codes available in the PCOF tool are displayed and evenly distributed under the appropriate patient types. The probability distribution of ICD-9 codes can be changed by entering new values in the user revision column.

Import a Custom Non-compliant PCOF

To import a PCOF, you will need to use the correct Excel template. Obtain the Excel template by creating a New or Custom Non-compliant PCOF and exporting it to Excel. The Excel export can then be modified to be used as a template for import into the PCOF Tool.

The Excel export contains two sheets. The first sheet is titled **Summary** and contains the following fields:

- Name,
- Description,
- Mission Type,
- Event Types,
- Point of Contact,
- Organization,
- Email,
- Phone Number, and
- Reference Material.

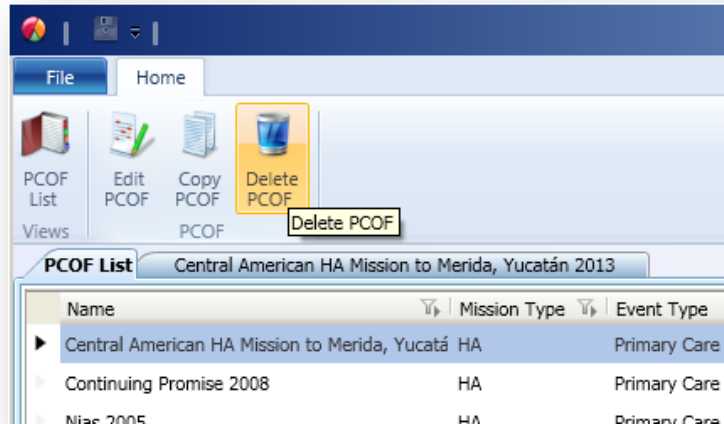The second sheet is labeled **ICD-9 Distributions** and contains

- the ICD-9 codes (in the field labeled **Name**),
- the description of the codes,
- the patient type associated with the codes, and
- the probability distribution associated with the codes.

Type the desired name for the PCOF in the **Name** field in the **Summary** sheet. It cannot be the same name as a baseline PCOF. If your PCOF has the same name as an existing non-compliant PCOF the program will ask you if you want to overwrite the PCOF in the tool when you import the file.

To import the new PCOF, select **Import**, then **Non-compliant PCOF from Excel** in the file menu. A dialog box opens to allow the user to find the file for import. Select the file you want to import and click **Open**. The tool contains validation checks to ensure the ICD-9 codes in the file are valid and that the distribution for each patient type equals 100. If the file contains any errors the import will be aborted.
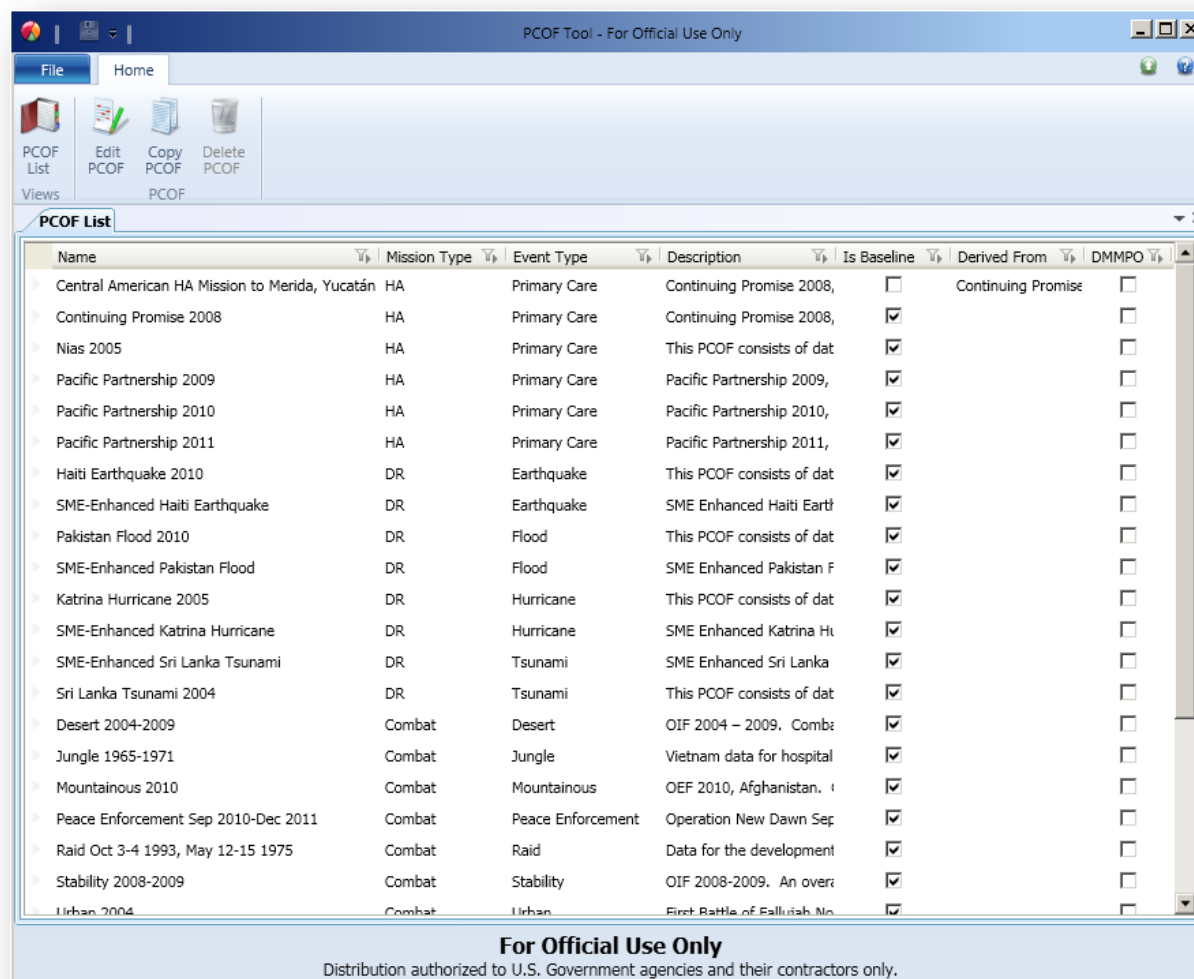
Delete a PCOF

Baseline PCOFs may not be deleted (if a baseline PCOF is selected in the list, the **Delete PCOF** icon will be inactive), but any user-created or imported PCOF can be deleted. To delete any user-created or imported PCOF, highlight the PCOF in the PCOF list and select the **Delete PCOF** icon in the ribbon.

For Assistance

If you have questions or problems with the PCOF tool, your point of contact (POC) is Mr. Ralph Nix; ralph.nix@med.navy.mil; phone 1-619-553-8785.

PCOF Tool Terms

Adjustment factor	Aspects of a mission that can be user adjusted (e.g., season, country, or ICD-9 code probability distribution).
Baseline PCOF	PCOF derived and approved by NHRC. They include default adjustments for the adjustment factors and default distribution adjustments for patient types, categories, sub-level categories, and ICD-9 codes. Specific attributes are provided in the table below.
Derived PCOF, distribution adjusted	PCOFs derived from Baseline PCOFs and have been developed by changing the distribution in the underlying data. Specific attributes are provided in the table below.
Derived PCOF, factor adjusted	PCOFs derived from baseline PCOFs. They contain a reference to the baseline PCOF adjustment factors and all baseline PCOF default adjustments. Derived PCOFs contain user adjustments for any adjustment factors. The user cannot modify distributions for ICD-9 codes. PCOF results are calculated based on changes to these adjustments. See specific attributes in the table below.
Non-compliant custom PCOFs (view only)	PCOFs that include ICD-9s not recognized by the DMMPO or the expanded sets. Since these contain ICD-9s that have not been mapped to categories and sub-level categories, the adjustment factors cannot be applied. Custom PCOFs do not support adjustments to adjustment factors or distribution adjustments to patient types, categories, sub-level categories, and ICD-9 codes. Specific attributes are provided in the table below. Non-compliant custom PCOFs can be used within the MCRW System. These PCOFs can be used within the MCRW processes, because they fall within the range of ICD-9 resident in the PCOFS, but they do not bear sanctioning by NHRC nor do they possess the required metadata. Specific attributes are provided in the table below.
PCOF Type	Term for PCOFs (e.g., baseline, derived, or non-compliant custom).

Table 2

PCOF Attributes

Attribute	Baseline	Derived, Adjustment factor	Derived, distribution adjusted	Custom compliant	Custom non-compliant; view only	Custom, non-compliant; can be used with MCRW system
Imported	No	No	No	Yes	Yes	Yes
Approved	Yes	Yes	No	No	No	No
Adjustable	Yes	Yes	Yes	Yes	No	No
ICD-9s	Yes	Yes	Yes	Yes	No	Yes

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Approved for public release; distribution is unlimited.

13. SUPPLEMENTARY NOTES

14. ABSTRACT

The Patient Condition Occurrence Frequency (PCOF) tool has been accredited for use by Department of Defense medical planners, materiel developers, clinicians, and logisticians to manage combat, humanitarian assistance (HA), and disaster relief (DR) PCOF distribution tables necessary to develop clinically-based planning estimates across the range of military operations (ROMO). A PCOF table is a listing of *International Classification of Diseases, 9th Revision* (ICD-9) codes and their associated probability distribution for each patient type (e.g., wounded in action, disease, and nonbattle injury). The PCOF tool contains 404 ICD-9 codes—336 ICD-9 codes selected by the Defense Medical Materiel Program Office (DMMPO) and 68 ICD-9 codes which occur in HA and DR data sets. The baseline PCOFs, which are derived and approved by Naval Health Research Center, are based on empirical data. Several aspects of any particular mission can be user adjusted, providing analysts a quick, accurate, and reliable means to estimate the probability distributions for illnesses and injuries that may occur across the ROMO. This guide instructs the user on basic tool navigation and operation.

15. SUBJECT TERMS
patient condition occurrence frequency, PCOF, range of military operations, ROMO, combat, humanitarian assistance, HA, disaster relief, DR

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